

**ABSTRACT**

Systems and methods for providing network access using network controllers and network interfaces. A network controller has one or more subsystems including a monitoring system that monitors a plurality of communication paths to detect a presence of link pulses in one of the communication paths, a communication providing system that routes the available network signal to a first device, and a communication halting system that prevents the available network signal from being transmitted to one or more other devices. A network interface has a first circuit path routing a first network signal received at a first input of the network interface to a first device. Moreover, the network interface has a second circuit path routing a second network signal received at a second input of the network interface to a first output of the first network interface to be received at a first input of a second network interface.